

to throw light on the general question of albinism. The seasonal changes observed in the coat colour of the Norwegian variable hares kept in Aberdeen are described week by week throughout the year, and illustrated by a long series of photographs. It is interesting to note that some small seasonal change in the pigmentation of the eye appears to occur, though the statistics collected on this point are not sufficiently extensive to establish it with certainty.

The experimental breeding of albino dogs forms the subject matter of Chapter X. The pekinese spaniels which were largely used in these experiments are particularly suitable for the purpose because the type of albinism which they exhibit appears to resemble more closely that found among human beings than does the albinism of other animals. The pedigree of these dogs is shown on plate LVII. of the atlas to Part IV. It is a remarkable specimen of drafting as thirteen generations are shown, among which, as is usual in pedigree stock, polygamy and inbreeding were customary. The result is something very like a maze, and would take hours of patient study to interpret.

The atlas of Part IV also contains the collection of 654 pedigrees of human albinism which has been formed by the authors. The text of this part provides careful descriptions of them, but their statistical reduction and analysis has been reserved for Part III., which has not yet been issued. Part IV. also contains a valuable bibliography. The printing and general get up of these volumes are of the highest quality.

EDGAR SCHUSTER.

Herbert, S., M.D. *The First Principles of Evolution.* A. and C. Black; 7s. 6d. net; pp. 346.

THIS book is not a critical study of the theory of evolution, such as the title rather suggests, but a summary of the facts and hypotheses on which the idea of evolution, in the widest sense, rests. It deals with all sides of the subject—evolution of stars and planetary systems, of the atom as indicated by modern work on radio-activity, the geological record, organic evolution in general, and finally that of man and his societies. It is obvious that in the space available, much of which is taken up by reproductions of good but well-known illustrations, these subjects must be discussed very shortly, but the author knows how to choose the salient points, and to give his readers a clear idea of the principles involved. When the small size of the book is considered, it is really rather a remarkable achievement, for it is readable throughout, and should give those who have little scientific training some idea of the unity of science and of its purpose, the search for satisfying knowledge of the nature and origin of the world in which we live. One of the most interesting chapters is that on mental evolution, or, perhaps, we should say, the evolution of behaviour, starting from the work of Jennings and others on the Protozoa and tracing the increasing complexity through the higher forms of life. The chapters on man are greatly condensed, but there is a long bibliography, which will enable the reader to follow up the questions which are raised if he wishes to pursue any particular part of the subject further. It is a book to be recommended to a non-scientific reader who wishes to get a general idea of the subject.

L. DONCASTER.

Ward, PROFESSOR JAMES, SC.D. *Heredity and Memory*, being the Henry Sidgwick Memorial Lecture, 1912. Cambridge University Press; 1913; 1s. 6d. net; pp. 56.

IN this lecture Professor Ward gives a concise and clear account of the hypothesis that heredity is a form of memory. In his view, it is no mere metaphor to speak of heredity as racial memory, but a statement of literal fact. The principle of continuity demands that if the psychical be admitted in man, it must exist in lower forms, and we know that

even very lowly organisms profit by experience and by habit perfect their structure. Similarly in development, the racial habit of developing in a certain way enables the embryonic organism to pass through in a few days or months stages which took æons to evolve, and the earlier stages, in which the habit is most firmly fixed, are those which are passed through most rapidly and regularly. Such a conception of heredity, of course, involves the assumption of the inheritance of acquired characters, but it is pointed out that direct evidence for the inheritance of such characters would of necessity be extremely difficult to obtain, since "we should not expect any clear manifestation of such heredity till the functions that have led to structures have passed far beyond the initial stage where conscious control is essential to their performance." A considerable part of the lecture is devoted to a refutation of Weismann's arguments, and it is unfortunate that such recent work as that of Kammerer and Tower is not mentioned in this connexion. Nor is there any mention of Mendel, a serious omission in a lecture which is in essence a protest against the purely mechanical interpretation of inheritance so much in vogue in recent Mendelian speculation. If the modern student of heredity is to be convinced that organic inheritance is a process akin to habit and memory, he must be shown how Mendelian segregation and its probable relation to the pairing and separation of chromosomes fit into the mnemonic scheme. That they may so fit in is quite possible, but a work dealing with the subject which does not even mention the problem cannot fail to leave some sense of disappointment in the reader.

LEONARD DONCASTER.

Davenport, CHARLES B. *State Laws Limiting Marriage Selection, Examined in the Light of Eugenics.* Eugenics Record Office. Bulletin No. 9. Cold Spring Harbour. June, 1913; price 40 cents.; pp. 66.

THE author classes the laws limiting marriage selection under three heads: (1) "Laws limiting the mental and physical condition of the consorts;" (2) "Laws limiting consanguinity in marriage;" (3) "Miscegenation." His method of examining them "in the light of eugenics" is to describe the results of a few matings of the kind prohibited in one State or another. It is, of course, impossible to arrive at a satisfactory answer to the question whether such marriages should be permitted or not by such a method, and indeed no very definite conclusions are arrived at. On the whole, Mr. Davenport does not appear to favour eugenic restrictions in marriage, but he opposes them principally on the ground that they are likely to be ineffective, even where they are biologically justifiable. Nevertheless, he outlines an elaborate and expensive scheme for State eugenic control of marriage which involves the employment of three sets of officials: (1) A State Eugenics Board, consisting of "a trained biologist, a general practising physician of experience, and a general practitioner of law of broad experience." These should be whole-time officers. (2) State official physicians, of whom in a State like New York there should be about 500. Marriage licenses would be issued by these after an examination of the physical condition and family history of the applicants. (3) The field workers, whose duty would be to investigate family histories under the direction of the physicians. The Bulletin concludes with a useful appendix, which gives a digest of State laws limiting marriage selection up to April, 1913.

Ponsonby, ARTHUR, M.P. *The Decline of Aristocracy.* T. Fisher Unwin; 1913; 7s. 6d. net; pp. 320.

MR. PONSONBY has selected an interesting object for his latest book. His treatment of the matter is thoughtful and suggestive; it is clearly the result of wide experience and careful observation. The early chapters